REMARKS

Claims 1-8 are pending in the present application. Applicants respectfully request entry and consideration of the present Response, at least for the purposes of placing the present application in better condition for appeal. No amendments are included.

Claims 1 and 2 have been rejected under 35 U.S.C. §102(b) as being anticipated by the article entitled "Transparent silica gel-PMMA composites," Pope, E.J.A. et al., J. Mater. Res. Vol. 4, No. 4, Jul/Aug 1989. ("Pope") Claim 4 has been rejected under 35 U.S.C. §102(b) as being anticipated by Pope, as evidenced by United States Patent No. 6,146,801, to Ichikawa et al. Applicants respectfully traverse. Claim 1 is independent.

Claim 1 recites a porous nano material polymer composite wherein polymer penetrates into nano pores of nano silica to form a network structure.

The Office Action incorporates the comments from Paragraph 5 of the Office Action dated August 10, 2009, which states that the phase dimensions "on the order of 100 angstroms" disclosed on p. 1018 of Pope reads on the claimed nano silica, and the pore diameter of 156 angstroms disclosed on p. 1019 reads on the claimed nano pores. Applicants respectfully submit that the Office Action has misinterpreted Pope.

As stated in the present specification, the nano silica of the present claims has pores on the nano order (¶13, p. 7). Clearly, the average diameter of the silica particles must be significantly larger than the pores within them. Thus, the "phase dimension" recited in Pope cannot read on the claimed nano silica, as advocated by the Office Action. The phase dimensions of 100 angstroms are not only not larger than the pore sizes of 156 angstroms also disclosed in Pope, as would be required in a nano silica particle, but they are smaller. By "phase dimension," Pope appears to be referring to the pore diameters. This interpretation is verified on p. 1020 of Pope, where the phase dimensions are "approximately 150 angstroms". This is almost equal to the 156 angstroms disclosed as being the pore diameter on p. 1019.

Accordingly, even if the pores of the particles disclosed in Pope read on the claimed nano pores, Pope fails to disclose or suggest nano silica, as required in claim 1. Pope cannot reasonably be interpreted to disclose particles having an overall dimension of 100-150 angstroms, and a pore diameter of 156 angstroms, as listed in the Office Action. The pore diameters must be smaller than the overall dimension of the particles.

Therefore, claim 1 is patentable over Pope under 35 U.S.C. §102(b), as are claims 2 and 4, which depend therefrom. Applicants respectfully request that the rejection of claims 1, 2, and 4 be withdrawn.

Claims 3 and 6-8 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Pope in view of Zerda et al., Macromolecules 2003, 36, 1603-1608 ("Zerda"), and Ichikawa. Claim 3 is independent. Applicants respectfully traverse.

Claim 3 recites a method of manufacturing porous nano material polymer composite, the method comprising, impregnating monomer in nanometer order holes of a porous nano material in supercritical carbon dioxide fluid, and polymerizing the monomer.

As previously discussed with respect to claim 1, Pope fails to disclose or suggest nano silicas, and thus fails to disclose or suggest the porous nano material of claim 3. Zerda and Ichikawa fail to cure this deficiency of Pope, and are not relied on by the Office Action to do so. Zerda is merely relied on for its disclosure of supercritical carbon dioxide fluid. Ichikawa is relied on for its disclosure of hexamethyldisilazane.

Therefore, claims 3 and 6-8 are patentable over the cited combination of Pope and Zerda under 35 U.S.C. §103(a). Applicant respectfully requests that the rejection be withdrawn.

Claim 5 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Pope in view of Ichikawa. Claim 5 depends from claim 4, which in turn depends from claims 1 or 2. As discussed above with respect to claim 1, Pope fails to disclose or suggest nano silica. Ichikawa fails to cure this deficiency. Accordingly, claim 5 is patentable over Pope in view of Ichikawa for at least the reasons provided above with respect to claim 1. Applicants respectfully request that the rejection of claim 5 be withdrawn.

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Such action is solicited.

Respectfully submitted,

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